

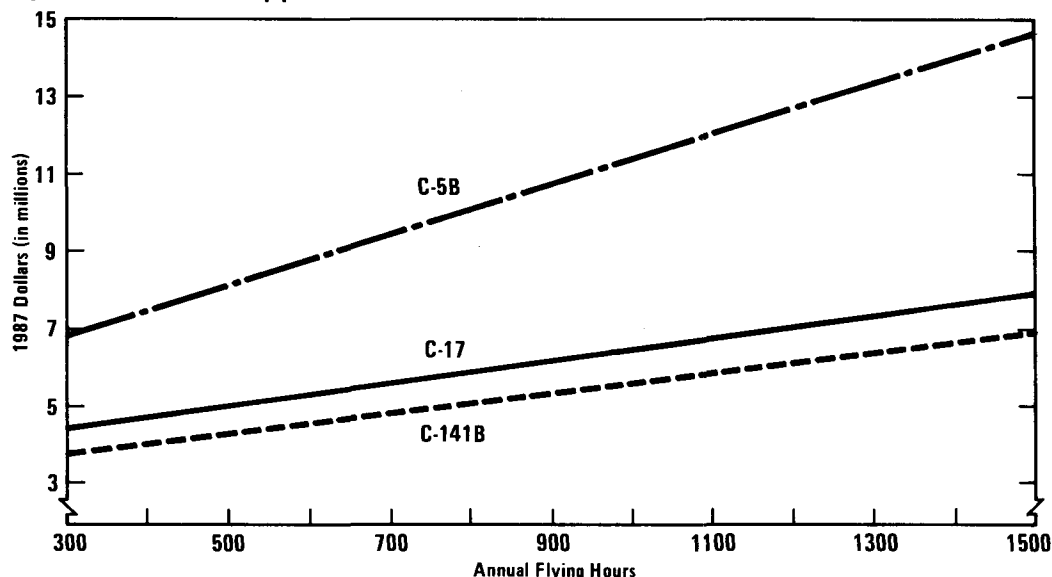
the C-5B and KC-10A aircraft and the lower flying hours associated with aircraft assigned to the Air Reserve Forces. The Air Force chooses to limit peacetime use of the C-5 because of its high O&S cost per flying hour. New pilots leaving training programs are assigned to aircraft that are cheaper to fly; only experienced senior pilots, who need less flying hours to maintain proficiency, are assigned to the C-5.

KC-10A pilots (about 40 percent of whom are reservists) also fly fewer hours. The Air Force does not maintain a training squadron for the KC-10A, but relies instead on a simulator training program to familiarize a pilot with the aircraft and achieve a basic level of proficiency. Final training and qualification of pilots is conducted in operational squadrons.

By contrast, the Air Force intends to follow an ambitious peacetime flying hour program for the C-17. Each aircraft will fly on the average of 3.8 hours per day or nearly 1,400 hours per year. (Each C-5A currently averages 774 hours per year.) The Air Force reasons that this is necessary to provide adequate flying time for the five crews assigned to each operational aircraft. These crews would include inexperienced pilots who need additional flying time to gain experience and proficiency.

Figure 4.

Operation and Support Costs Per Aircraft



SOURCE: Congressional Budget Office estimates based on data supplied by the Department of the Air Force.

TABLE 3. OPERATION AND SUPPORT COSTS
FOR VARIOUS AIRCRAFT

Aircraft Type	Number and Type of Crews Per Aircraft	Average Flying Hours (Per year)	Annual Operation & Support Cost (In millions of 1987 dollars)
C-5A	2 active/ 2 res. assoc.	774	10.9
C-5A	4 reserve	584	8.2
C-5B	2 active/ 2 res. assoc.	774	10.0
C-5B	2 active/ 2 res. assoc.	1,176 <u>a/</u>	12.7
C-17	5 active	1,397	8.6
C-17	3 active/ 2 res. assoc.	1,397	7.6
C-17	5 reserve	938	4.8
C-141B	2 active/ 2 res. assoc.	1,176	6.1
C-141B	2 active	810	4.4
C-141B	4 reserve	720	3.5
C-141B	2 reserve	358	2.2
KC-10A	2 active/ 1.5 reserve	819	4.8
C-130E/H	2 active	719	3.1
C-130E/H	2 reserve	468	1.7

SOURCE: Headquarters, Military Airlift Command (adjusted to 1987 dollars by the Congressional Budget Office).

a. Higher flying hours if each C-5B were required to support same number of pilots in force as the C-141.

These assumptions push up the cost of the C-17 relative to the C-5 and KC-10A. (For a more complete discussion of their implications, see Chapter III.)

Results of the Administration's Plan

CBO estimated the total discounted life-cycle cost of the airlift program for the 30-year period of 1987 through 2016. It chose a 30-year period to allow enough time for differences in operation and support costs to become significant factors in the total. Discounted at the rate of 2 percent per year, to provide a comparable figure to near-term spending, the Administration's plan yields a total cost of \$118.1 billion, or an average cost of \$3.9 billion per year over the 30-year period.^{7/} This figure includes the savings associated with the retirement of 54 C-141Bs and 180 C-130s. It represents an increase of \$30.1 billion, or 34 percent over the cost simply to operate the 1989 airlift fleet. The Administration's plan, however, achieves the goal of 66 MTM/D by the year 2000, an increase of 36 percent over the 1989 airlift level of 48.5 MTM/D. It also modernizes the intertheater airlift fleet and adds considerably to intratheater airlift capability.

7. The 2 percent rate represents CBO's current estimate of the real (inflation-adjusted) long-term interest rate. Appendix B examines the sensitivity of the long-run cost comparisons to the choice of discount rate.



CHAPTER III

ALTERNATIVE PROGRAMS

TO IMPROVE STRATEGIC MOBILITY

There are alternative approaches to the Administration's plan that would either cost less or add to capability faster. All of them are built on the near-term program of airlift improvements--already funded--that would achieve an airlift capability of 48.5 MTM/D by 1989.

For example, the time required to achieve the goal of 66 MTM/D could be shortened by six years if the Congress canceled the C-17 program and continued to purchase the C-5B and KC-10A instead. This alternative would require less total funds for procurement, but would save relatively little overall once operating costs are considered.

Alternatively, the Congress could defer attaining the 66 MTM/D goal, at least within this century, and accept a lower level of airlift capability. A more limited acquisition of C-5s and KC-10s would achieve an intertheater airlift capability of 56 MTM/D by the year 1991. Not only would this alternative avoid acquisition costs, but the smaller airlift fleet would result in a lower annual cost for operation and support.

Finally, additions to maritime prepositioning would offer the least expensive way to increase strategic mobility. This third alternative would maintain the 48.5 MTM/D of airlift capability available by 1989, and direct additional spending to maritime prepositioning squadrons. It would also offer significant budgetary savings in both the near and long term. U.S. capability would, however, be more limited under this approach since it lacks the flexibility and rapid responsiveness that additional airlift would provide.

ALTERNATIVE I: ACHIEVE AIRLIFT GOAL EARLIER

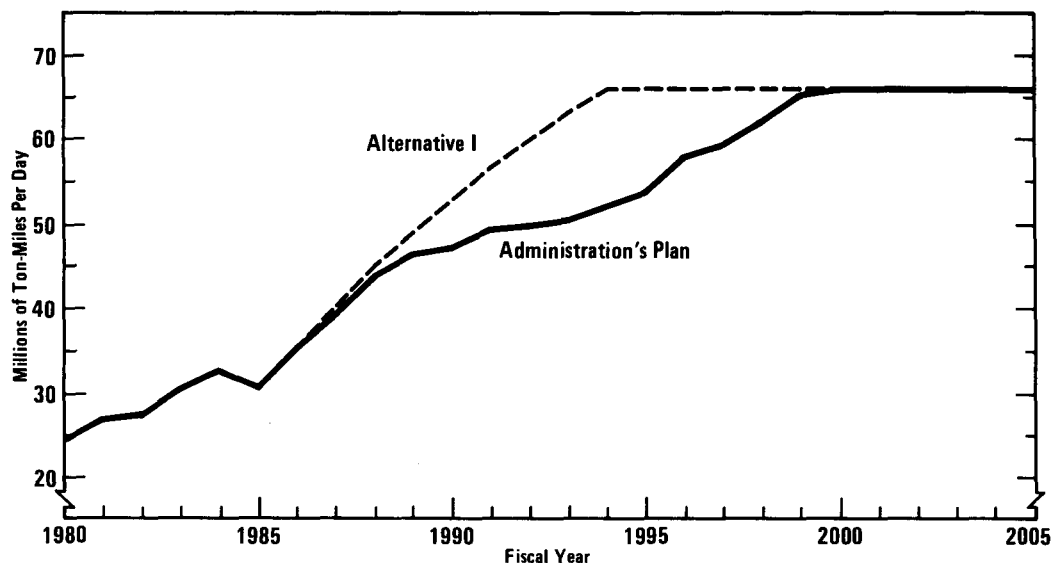
If the Congress wished to achieve the 66 MTM/D airlift goal earlier, it could continue to purchase the C-5B Galaxy aircraft and the KC-10A--both of which are in production--and expand plans for using commercial cargo aircraft such as the Boeing 747 or the unmodified DC-10. Under this alternative, the 66 MTM/D airlift goal would be achieved by 1994--six years earlier than under the Administration's plan (see Figure 5). This earlier gain could

be important if the airlift deficiency is as critical to U.S. warfighting capability as theater commanders claim. This alternative, however, would not achieve the Administration's goals for force modernization.

Specifically, 70 additional C-5Bs would ensure sufficient capacity to transport outsize cargo and, in fact, the C-5B is the only U.S. aircraft with this capability currently in production. But the C-5 is expensive to operate in peacetime. Therefore, the most cost-effective way to increase capability to transport bulk and oversize cargo is either through the CRAF program, which uses commercial cargo aircraft, or through the purchase of additional KC-10 aircraft. This alternative, then, would also buy 66 KC-10 aircraft and add 31 aircraft to the CRAF program. In addition, since the Air Force does not intend to employ the C-5B in the forward delivery role and since the KC-10 and CRAF aircraft require large improved runways not usually found in forward combat areas, this option would buy 180 new C-130H airlifters to replace the aging C-130 aircraft the Air Force plans to retire.

Alternative I would retire 54 C-141B aircraft just as in the Administration's plan. Under this approach, however, the remaining 180 C-141s would be kept at their current capability by retaining the four crews currently assigned to each aircraft rather than reducing the number of crews to

Figure 5.
Intertheater Airlift Comparison



SOURCES: Congressional Budget Office (for 1987-2005 projections); Department of the Air Force (for 1980-1986 data).

two per aircraft, as the Administration plans to do. ^{1/} The service life of each C-141 would also be extended from the current level of 45,000 flying hours to 60,000. This increase would most likely require rehabilitation of the engines and other maintenance to the airframe.

Increases in Capability

As noted above, Alternative I would meet the goal of 66 MTM/D by 1994. The 70 new C-5Bs would add 11 MTM/D of outsize capability, while the 66 KC-10s would provide 6 MTM/D to meet bulk and oversize requirements. The 31 commercial aircraft added to the CRAF program would effectively replace the 54 C-141s to be retired. Should the Air Force lower its utilization rate for the C-5, however, total capability under this approach would not meet the goal.

Near-Term Costs

Achieving the airlift goal earlier would cost more in the near term than the Administration's option. Alternative I procures 48 C-5 aircraft, 32 KC-10 aircraft, and 75 C-130 aircraft during the next five years at a cost of \$9.9 billion (see Table 4). Extending the service life of the C-141 fleet to 60,000 hours and increasing the size of the CRAF fleet will add an additional \$1 billion for a total cost for this option of \$10.9 billion.

CBO based its estimates of aircraft prices on firm offers by contractors where possible. The Lockheed Corporation recently offered to sell the Air Force 24 additional C-5B aircraft at an average flyaway cost of \$108 million (at 1987 budget prices). The KC-10 aircraft averages about \$63 million apiece. The KC-10 is currently being acquired through a multi-year contract that incorporates an economic price adjustment (EPA) clause to price each year's deliveries. CBO based its estimates of the cost of additional KC-10 purchases on a McDonnell Douglas proposal to extend the KC-10 procurement with a similar multiyear contract.

Costs for the enhanced CRAF program were estimated at \$0.6 billion over 1987 through 1991 and \$1.0 billion for all 31 aircraft. Part of these funds would pay for modifications to wide-body passenger aircraft that

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1. Each active force C-141 squadron has 36 crews for its 18 primary aircraft. Associated with the active squadron and using its equipment is an Air Force Reserve squadron (36 crews), making a total of 72 crews, or four per aircraft. The Air Force plan would transfer the C-141 equipment to the reserve squadron as new C-17 aircraft became available to equip the active squadron.

TABLE 4. ACHIEVE AIRLIFT GOAL EARLIER: QUANTITIES AND ACQUISITION COSTS
(In billions of 1987 budget year dollars)

Aircraft	1987	1988	1989	1990	1991	Total 1987-1991	To Complete	Total Program
C-5B								
Quantity	a/	12	12	12	12	48	22	70
Cost	0.3	1.5	1.5	1.4	1.4	6.1	2.2	8.4
KC-10A								
Quantity	a/	8	8	8	8	32	34	66
Cost	0.4	0.4	0.5	0.5	0.5	2.3	1.7	4.0
C-141 (Modifications)								
Cost	0	b/	0.1	0.1	0.1	0.4	0.3	0.7
C-130H								
Quantity	15	15	15	15	15	75	105	180
Cost	0.3	0.3	0.3	0.3	0.3	1.5	2.0	3.5
Civil Reserve Air Fleet (CRAF)								
Quantity	5	3	4	3	3	18	13	31
Cost	0.2	0.1	0.1	0.1	0.1	0.6	0.4	1.0
Total Cost	1.1	2.4	2.5	2.5	2.4	10.9	6.7	17.6

SOURCE: Congressional Budget Office.

a. Quantities and costs to complete the near-term airlift program are excluded.

b. Less than \$50 million.

would allow them to be converted quickly to cargo freighters in an emergency. Because these modifications add weight and increase fuel consumption, the total cost also includes a payment to the aircraft owners to compensate for higher operating costs.

Total Program Costs

Procurement for this program would continue beyond the next five years. As noted above, this option would eventually purchase 70 C-5Bs, 66 KC-10s, and 180 C-130Hs (the latter replacing the 180 C-130 aircraft to be retired). Procurement programs for these aircraft at current prices results in a total acquisition cost of \$17.6 billion over the 1988-1994 period (see Table 4). This amount is 40 percent less than the \$29.3 billion CBO estimates would be spent on the Administration's plan.

Total Life-Cycle Costs

Since life-cycle costs include both acquisition and operating and support costs, they provide a better picture of the true cost of this alternative. CBO estimates that Alternative I would result in a total discounted life-cycle airlift cost of \$114.4 billion over the 1987-2016 period. ^{2/} This figure is \$3.7 billion, or 3 percent, less than the \$118.1 billion cost of the Administration's plan.

These results differ from Air Force estimates published in 1983, which found the C-5 approach to be more expensive. The main reason for the difference is that the Air Force examined an "all C-5" alternative. The alternative CBO examined would buy some C-5s needed to carry outsize cargo but also cheaper KC-10As and CRAF aircraft that could carry other types of cargo. Since 1983, assumed costs to buy and operate the various aircraft have changed--the C-5B became cheaper to buy and the projected cost to operate the C-17 increased. Declining fuel prices have also lessened the cost advantage of the C-17 over the C-5.

The CBO estimate for this plan assumes current operating hours for the new C-5Bs and Air Force estimates for manning. But both of these assumptions are subject to variations that could alter results.

Personnel Costs. The Air Force estimated that choosing the C-17 (the Administration's plan) would result in a net reduction of 3,366 personnel. In

2. This estimate uses a 2 percent discount rate. Appendix B compares the long-term costs at other discount rates.

contrast, Alternative I requires an increase of 9,000 personnel, resulting in a total difference of about 12,400 positions between the two plans. Much of this difference results from the Air Force's plan to reduce the number of C-130 tactical airlift aircraft to 342, which eliminates 7,020 positions. Alternative I would retain these positions.

The Air Force may change its plan to retire 180 C-130 aircraft without replacing them. (DoD is currently reevaluating the intratheater airlift requirement.) Thus, although the Air Force claims that the forward-delivery capability of the C-17 will more than offset the loss of the C-130s, additional intratheater capability may still be necessary to meet higher DoD requirements. If so, retaining the C-130s would eliminate some or all of the projected personnel savings that would accrue with the Air Force plan, and would reduce the difference between it and the CBO alternative plan. On the other hand, if DoD decides on a requirement for greater intratheater airlift than exists today, more C-130s than are assumed in this alternative would be required.

C-5 Operating Costs. Choosing the C-5 instead of the C-17 may lead to higher operation and support costs. Currently, the Air Force restricts the flying hours of the C-5--because of its higher per hour cost--and generates most of the operational flying needed to give its pilots experience in C-141s and C-130s. Were the C-17 program to be canceled and C-5s bought instead, it would be necessary--the Air Force contends--to increase average peacetime flying hours for the C-5 from 774 hours per year to 1,176 hours--the same rate as the C-141 is operated currently--in order to maintain an adequate flying hour program. This change would increase the annual operation and support cost per aircraft by \$2.7 million, or 27 percent, and would increase the discounted total cost of Alternative I to \$120.6 billion, \$2.5 billion more than the Administration's plan. The Air Force might, however, meet its personnel needs in other ways, such as continuing to operate the C-141 fleet with four crews per aircraft, as Alternative I assumes.

Thus, Alternative I, which achieves wartime capability equal to the Administration's alternative six years earlier, would save about 3 percent relative to the Administration's plan. Under different assumptions about C-5 operations, however, Alternative I might cost more than the Administration's plan.

ALTERNATIVE II: ACCEPT A LOWER AIRLIFT GOAL

Alternative I would clearly not greatly reduce airlift costs, which may be necessary in a period of fiscal restraint. CBO's second alternative, there-

fore, lowers costs more substantially by building up long-range airlift capability only to 56 MTM/D, rather than to the Administration's goal of 66 MTM/D. Under this alternative, the Air Force would buy C-5 and KC-10 aircraft rather than the C-17. Since a smaller number of aircraft are needed in order to meet the 56 MTM/D goal, it is more effective to buy existing types of aircraft than to complete development and build a new aircraft such as the C-17.

Are 56 MTM/D Enough?

Estimates of military requirements are inherently uncertain, depending as they do on the uncertain nature of future conflicts (for example, the location of the threat, the speed of response, the type of forces required, and so forth). Nonetheless, one can examine the 56 MTM/D figure in terms of current estimates and history.

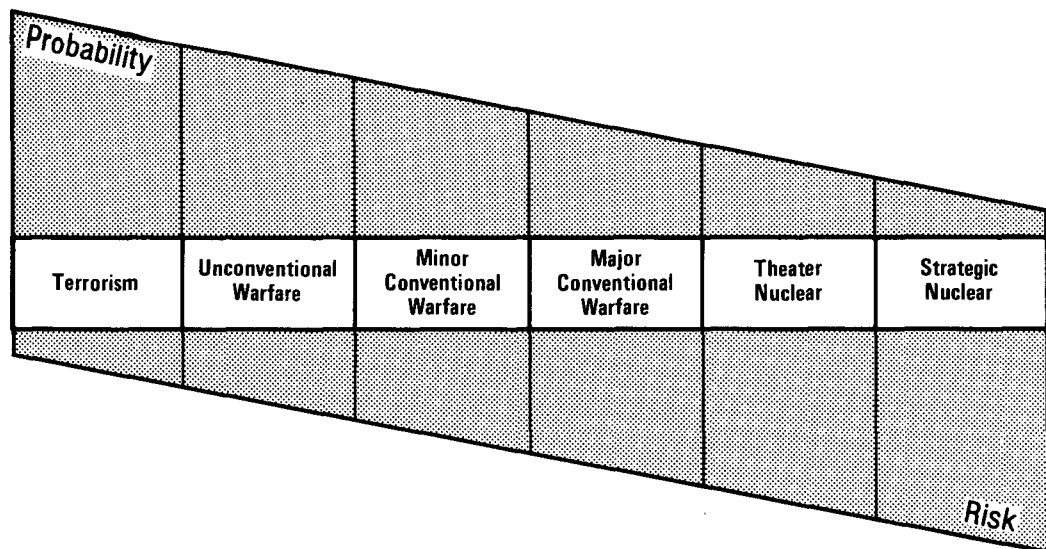
Major Scenarios. Estimated airlift requirements in the early days of a major conventional conflict involving the Soviet Union might greatly exceed even the Administration's goal of 66 MTM/D. The *Congressionally Mandated Mobility Study* examined airlift requirements for several scenarios. An all-out war in Europe might well require 479,000 tons of cargo in a 15-day period, or a capability of about 112 MTM/D. A demanding war in Southwest Asia could require the delivery of 206,000 tons of equipment and material within the first 15 days, a rate of about 96 MTM/D.

Perhaps because of these large potential needs, theater commanders would not support lowering the goal to 56 MTM/D. General Bernard Rogers, Commander in Chief of the U.S. European Command, has said that, in the face of a large conventional attack, early reinforcement would be crucial for avoiding the necessity to escalate to the use of nuclear weapons.^{3/} While a smaller airlift force would eventually deliver the needed tonnage, it would not achieve the delivery schedule that theater commanders believe necessary to counter the threat.

Lower-Intensity Conflicts. A smaller airlift force would meet requirements in more limited or less intense wars, indeed the most likely future conflicts. In general, the likelihood of any given level of conflict is inversely related to its intensity (see Figure 6). As General Nutting (formerly Commander in

3. General Bernard Rogers, statement before the Committee on Armed Services, United States Senate, March 12, 1986, p. 7.

Figure 6.

"Spectrum of Conflict" Approach to Force Planning

SOURCE: Department of the Army.

Chief, U.S. Readiness Command) points out, "Since World War II, we have been involved in well over 200 contingency operations--operations considerably short of war, many of which required a military response of some dimension.... Throughout the world today there are 40 conflicts in progress. Thirty-five of these fall into the Low-Intensity Category." ^{4/}

Recent history and projections suggest that existing airlift assets are more than adequate to deal with these low-intensity conflicts, as was demonstrated in the Grenada operation and United States support to Israel during the 1973 war. Moreover, should deployment of forces to Central America become necessary, the capability of existing airlift would be sufficient since distances are so relatively short. A separate problem is the limited number of airfields in the region. Airfield saturation, not airlift capability, would constrain cargo movement in Central America. This problem argues for using the C-17 for this type of conflict since the C-5 would operate less efficiently on small airfields.

Capability in Previous Conflicts. This nation has never maintained an airlift force with a capability anywhere near as great as 66 MTM/D. By the end of

4. Wallace H. Nutting, "Strategic Mobility: A Puzzle Which Must Be Solved," *Government Executive*, vol. 17 (January 1985), p. 26.

World War II, for example, the Air Transport Command (predecessor to today's Military Airlift Command) had over 3,700 aircraft and was moving just under 100,000 tons of cargo and mail per month on long- and short-haul missions. ^{5/} But because these missions averaged less than 1,000 miles at speeds of less than 200 nautical miles per hour, the capability of this force (by the modern measure) probably would not have exceeded 5 MTM/D. ^{6/} Needless to say, the aircraft of the time had little capability to carry equipment, and loading and unloading cargo was slowed by the lack of a standard pallet system.

In 1969, near the peak of the Vietnam War effort, the Military Airlift Command (MAC) moved over six billion ton-miles of cargo, or about 16 MTM/D, counting both inbound and outbound traffic. ^{7/} An example of deployment more comparable to a surge effort, however, is that of the 101st Airborne Division in 1967, when approximately 10,000 troops and 5,000 tons of cargo were transferred from Fort Campbell, Kentucky to Bien Hoa, Vietnam. This effort required 413 airlift sorties over a 43-day period, a rate (for cargo only) of 1.1 MTM/D. ^{8/} A more intensive rate of activity was recorded in 1968, when 6,000 troops and 3,500 tons of cargo were redeployed to Korea within a 10-day period as a result of the Pueblo incident, a rate of nearly 3 MTM/D. ^{9/}

While the Vietnam War represented a substantial conflict that appeared to involve low rates of airlift, surge requirements cannot be determined from the Vietnam experience, since U.S. entry into the theater was incremental. It is clear, however, that once the surge period of deployment is over, sustaining requirements for airlift are unlikely to exceed 35 MTM/D. ^{10/} This figure is less than the amount of sustained airlift capa-

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5. W. F. Craven and J. L. Cate, *The Army Air Forces in World War II: Volume VII, Services Around the World* (Washington, D.C.: Office of Air Force History, 1983), p. 19.
 6. James P. Crumley, Jr., *Intertheater Airlift: What's There To Do Once the SEALOC Closes?* (Washington, D.C.: Industrial College of the Armed Forces, 1986), p. 30.
 7. U.S. Department of the Air Force, *History of the Military Airlift Command, 1 July 1969-30 June 1970*, vol. I (Washington, D.C.: January 1971), p. 18.
 8. Kenneth Patchin, "Strategic Airlift," Chapter X of *The United States Air Force in Southeast Asia*, Carl Berger, ed. (Washington, D.C.: Office of Air Force History, 1977), p. 197.
 9. Ibid.
 10. Crumley, *Intertheater Airlift*, p. 83.

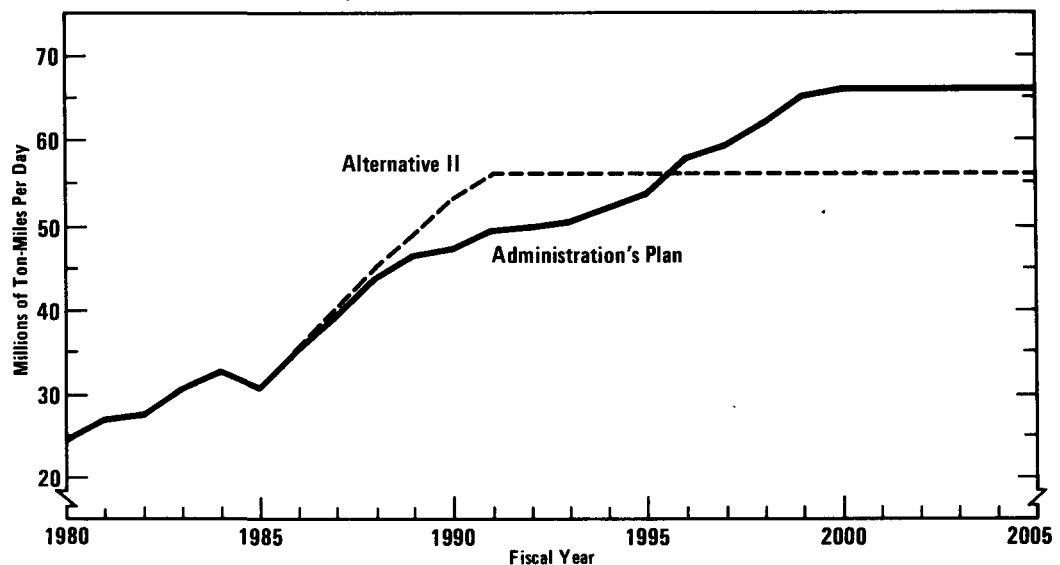
bility that will be available when all the C-5Bs and KC-10s already ordered are delivered.

Capability and Cost

If the Congress judged that 56 MTM/D were an adequate goal, it could proceed with this alternative, which would mean canceling the C-17 program and buying C-5B and KC-10A aircraft instead, though in smaller quantities than those considered for Alternative I. Specifically, Alternative II would require purchasing an additional 24 (21 PAA) C-5Bs and 40 (36 PAA) KC-10As, as well as extending the useful service life of 180 of the C-141s. In addition, 31 more wide-body aircraft would be added to the CRAF program and 180 C-130s would be replaced, just as in Alternative I. (Other mixes of aircraft are possible as well; the plan CBO devised was based on actual offers by the manufacturers where possible.)

Alternative II would achieve 56 MTM/D of capability by 1991 (see Figure 7). Added capability would come equally from the two types of aircraft (as 21 C-5Bs and 36 KC-10s each would provide 3.6 MTM/D of intertheater capability).

Figure 7.
Intertheater Airlift Comparison: Lower Airlift Goal



SOURCES: Congressional Budget Office (for 1987-2005 projections); Department of the Air Force (for 1980-1986 data).

One clear finding of CBO's analysis is that, if the Congress elects a lower goal for airlift than the 66 MTM/D, it should reexamine the need for the C-17. For example, if the goal were 56 MTM/D, only 132 C-17s would be needed. At this lower production figure, their average total program cost would be about \$175 million, 23 percent greater than under the Administration's alternative. In other words, the C-17 would be significantly less cost effective in the intertheater role if the airlift goal were lower.

Total program cost for Alternative II is \$10.7 billion, of which \$7.7 billion would be spent over the next five years (see Table 5). Because this option would result in a smaller airlift fleet, costs to operate and support the entire fleet would be less than under the Administration's plan. CBO estimates the total discounted life-cycle cost of this option to be \$98.5 billion. This figure is \$19.6 billion less than the life-cycle cost of the Administration's plan, or a reduction of about 17 percent.

ALTERNATIVE III: EMPHASIZE MARITIME PREPOSITIONING INSTEAD OF AIRLIFT

While Alternative II cuts long-term costs, it only modestly reduces costs in the next few years. One way to do this, while also achieving large reductions in long-term costs, is through maritime prepositioning.

Prepositioning means placing unit equipment and initial supplies within the combat theater, and represents another way to meet mobility requirements. It eliminates the need to buy strategic airlift or sealift assets to move the items. In the event of a crisis, unit personnel and any remaining nonprepositioned equipment would be flown to the storage area (if prepositioning is on land) or to the point where ships would unload (if prepositioning is sea-based). Once unit personnel arrive, two to three days would be required to get the equipment ready to move, depending on the size of the unit. Personnel would then proceed to the combat area onboard the equipment or by using tactical airlift.

Current Prepositioning

The CMMS recommended adding 130,000 tons of prepositioned material in Southwest Asia and expanding the prepositioning program already under way in Europe. In 1984, the Congress released funds authorizing the Army to preposition two additional division sets of equipment in Europe (raising the total to six). In addition, equipment for a Marine brigade was prepositioned in Norway and work is under way to increase in-theater support for tactical

TABLE 5. ACCEPT A LOWER AIRLIFT GOAL: QUANTITIES AND ACQUISITION COSTS
(In billions of 1987 budget year dollars)

Aircraft	1987	1988	1989	1990	1991	Total 1987-1991	To Complete	Total Program
C-5B								
Quantity	a/	12	12	0	0	24	0	24
Cost	0.3	1.5	1.2	0	0	3.0	0	3.0
KC-10A								
Quantity	a/	8	8	8	8	32	8	40
Cost	0.4	0.4	0.5	0.5	0.4	2.3	0.2	2.5
C-141 (Modifications)								
Cost	0	b/	0.1	0.1	0.1	0.4	0.3	0.7
C-130H								
Quantity	15	15	15	15	15	75	105	180
Cost	0.3	0.3	0.3	0.3	0.3	1.5	2.0	3.5
Civil Reserve Air Fleet (CRAF)								
Quantity	5	3	4	3	3	18	13	31
Cost	0.2	0.1	0.1	0.1	0.1	0.6	0.4	1.0
Total Cost	1.1	2.4	2.3	1.0	0.9	7.7	3.0	10.7

SOURCE: Congressional Budget Office.

a. Quantities and costs to complete the near-term airlift program are excluded.

b. Less than \$50 million.

aircraft that would be deployed to Europe in wartime. Because of the time required to negotiate funds to construct facilities for storing this equipment, and because other needs exist for much of the equipment being prepositioned in Europe, accomplishing this prepositioning has lagged.

The CMMS recommendations for prepositioning outside of Europe have also been pursued, but with only limited land-based prepositioning. Outside of Europe and South Korea, there are few sites where extensive land-based prepositioning is feasible or prudent. The combination of local sensitivities and instability of regional governments (witness Iran) argues against the United States placing valuable military assets at risk. A limited amount of material has been prepositioned in the Persian Gulf region, but secure locales for additional sites are difficult to obtain. Maritime prepositioning--storing equipment and supplies on board ships--is an alternative in this case.

In response to the increased threat to the oil-producing nations of the Persian Gulf, the Carter Administration established the Near-Term Prepositioning Force (NTPF) at Diego Garcia in the Indian Ocean to support Army, Navy, and Air Force units of the Rapid Deployment Force (now the U.S. Central Command). The original prepositioning force of 17 ships (13 in the Indian Ocean and four at other locations) has now been augmented with two Maritime Prepositioning Ship (MPS) squadrons. Each squadron consists of four or five ships and carries all the ground equipment for a Marine brigade, together with supplies and ammunition to support that force for 30 days. One more MPS Squadron--supporting a third Marine brigade--will be deployed this year.

Additional Maritime Prepositioning

Further maritime prepositioning could be accomplished anywhere that a secure location can be established for prepositioning ships. This alternative assumes that enough equipment for an Army division (about 16,000 troops) would be prepositioned on 12 MPS ships. Military leaders would establish the location of the prepositioning in light of likely military contingencies, and could alter it as circumstances change.

Under Alternative III, no additional aircraft for intertheater strategic mobility would be purchased, but the 12 ships should more than make up for this loss in added ability to move heavy equipment. Indeed, it would take the entire fleet of 210 C-17s that the Administration plans to buy some 18 days to move the same amount of equipment to Southwest Asia as would be prepositioned on the 12 ships acquired under this approach. In contrast, were the ships to be deployed on warning from Diego Garcia (an island in the

Indian Ocean where the United States currently has material prepositioned), it would take two days for them to reach Persian Gulf ports and another three to five days to unload. This gain of 11 to 13 days could significantly alter the outcome of a military conflict in that region.

While this option would not purchase more strategic airlift, it would buy more tactical airlift. Prepositioning can get equipment to the theater but not to the exact location where it is needed. Therefore, this alternative assumes the purchase of 180 new C-130s to replace the older ones that are to be retired. While this purchase would maintain current intratheater airlift capability, it would not provide the ability to project heavy forces by air deep into the interior, as the C-17 would. Alternative III also extends the life of C-141s and continues to use them at current rates to help meet strategic airlift requirements.

Costs

Near-term investment costs for Alternative III are much lower than the other alternatives, in part because of special financing arrangements. The maritime prepositioning ships currently being acquired were obtained through a leasing arrangement with private owners. Lease costs are paid annually from Navy operation and maintenance appropriations. This alternative follows that practice. Since the Navy's current annual cost of leasing averages \$25.5 million dollars per ship, \$306 million a year in lease costs are estimated for the 12 ships necessary to hold a division set of equipment.

This amount does not include additional government costs resulting from the tax implications of leasing. Recent changes in tax laws will affect leasing offers for new ships and make purchase of them more attractive. A review by the Congressional Research Service found the cost to the government of leasing would be 3 percent to 12 percent more than the purchase price.^{11/} The prepositioning approach would still be considerably cheaper, however, even if the ships were purchased outright. In 1982, the cost of newly-built or converted prepositioning ships was less than \$200 million. In today's depressed shipbuilding market, it might be even lower.

For comparability with the other alternatives, lease costs are included in near-term investment costs, even though they would not be paid from procurement funds. Investment costs for this option over fiscal years 1987

11. Jane Gravelle, "Comment on Study of Lease vs. Purchase of Naval Ships" (Washington, D.C.: Congressional Research Service, February 18, 1983).